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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/026,483	12/27/2001	Sunghoe Yoon	8733.575.00	7732

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EXAMINER	
ERDEM, FAZLI	
ART UNIT	**PAPER NUMBER**
2826	

DATE MAILED: 01/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/026,483	SUNGHOE, YOON	
	Examin r	Art Unit	
	Fazli Erdem	2826	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1-12 rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. (5,812,229) in view of Hoshino (6,515,729) further in view of Kaneko (6,504,588) further in view of Jiang et al. (2002/0113921 A1) further in view of Epstein et al. (6,508,560) further in view of Biles et al. (4,993,789).

Regarding Claims 1-12, Chen et al. disclose a holographic reflective color liquid crystal display device which includes a front polarizer, a liquid crystal cell, a retardation film, a back polarizer, and a reflective holographic optical element. Diffuse ambient light illuminates the front polarizer which polarizes the ambient light and transmits the polarized light to the liquid crystal cell. The liquid crystal cell receives the polarized light and transmits polarized light derived from the incident polarized light to the retardation film. The retardation film receives the polarized light and transmits polarized light, including light within a selected spectral band. The back polarizer receives the polarized light from the retardation film and selectively transmits polarized light derived from the incident polarized light. The reflective holographic optical element receives polarized light toward the back polarizer, where the light has an effective spectral band that includes light in the selected spectral band. Chen et al. fail to disclose the substrate/electrode/retardation structure, absorption/filter structure, and holographic/cholesteric

structure, holographic film and angle configuration. However, Hoshino discloses a reflection-type color liquid crystal display device where the required substrate/electrode/retardation structure is disclosed. Furthermore, Kaneko discloses reflection-type color liquid crystal display device having absorbing member containing fluorescen material where the required absorption/filter structure is disclosed. Jiang et al. disclose a high-brightness color liquid crystal display panel employing light recycling therein where the required holographic/cholesteric structure is disclosed. Epstein et al. disclose a display apparatus with corrosion resistant light directing film where the required holographic film is disclosed. Finally, Biles et al. disclose a dual wavelength polarization selective holographic optical element where the required angle configuration is disclosed.

It would have been obvious to one of having ordinary skill in the art at the time the invention was made to include required substrate/electrode/retardation structure, absorption/filter structure, holographic/cholesteric structure, holographic film and angle configuration in Chen et al. as taught by Hoshino, Kaneko, Jiang et al., Epstein et al., and Biles et al. respectively, in order to have a liquid crystal display device with better performance.

2. Claims 13-24 rejected under 35 U.S.C. 103(a) as being unpatentable over Wu (2002/0109810 A1) in view of Hoshino (6,515,729) further in view of Kaneko (6,504,588) further in view of Jiang et al. (2002/0113921 A1) further in view of Epstein et al. (6,508,560) further in view of Biles et al. (4,993,789)

Regarding Claims 13-24, Wu discloses a half reflection type liquid crystal display where the device provides a half reflection type LCD comprising a liquid crystal panel. At least a

compensation plate is arranged on the upper surface of the liquid crystal panel, and a polarizing plate is provided on the outer surface of the compensation plate. A holographic reflector is arranged on the lower surface of the liquid crystal panel. A backlight modular is arranged below the holographic reflector to be used as a light source. Wu fails to disclose the substrate/electrode/retardation structure, absorption/filter structure, holographic/cholesteric structure, holographic film and angle configuration. However, Hoshino discloses a reflection-type color liquid crystal display device where the required substrate/electrode/retardation structure is disclosed. Furthermore, Kaneko discloses reflection-type color liquid crystal display device having absorbing member containing fluorescen material where the required absorption/filter structure is disclosed. Jiang et al. disclose a high-brightness color liquid crystal display panel employing light recycling therein where the required holographic/cholesteric structure is disclosed. Epstein et al. disclose a display apparatus with corrosion resistant light directing film where the required holographic film is disclosed. Finally, Biles et al. disclose a dual wavelength polarization selective holographic optical element where the required angle configuration is disclosed.

It would have been obvious to one of having ordinary skill in the art at the time the invention was made to include required substrate/electrode/retardation structure, absorption/filter structure, holographic/cholesteric structure, holographic film and angle configuration in Wu as taught by Hoshino, Kaneko, Jiang et al., Epstein et al. and Biles et al. respectively, in order to have a liquid crystal display device with better performance.

3. Claims 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu Jiang et al. (2002/0113921 A1) in view of Chen et al. (5,812,229) in view of Hoshino (6,515,729) further in view of Kaneko (6,504,588) further in view of Jiang et al. (2002/0113921 A1) further in view of Epstein et al. (6,508,560) further in view of Biles et al. (4,993,789).

Regarding Claims 24 and 25, Jiang et al. disclose a high-brightness color liquid crystal display panel employing light recycling therein where a method of producing cholesteric liquid crystal color filters by polymerizing different portions of cholesteric liquid crystal mixtures at different temperatures and radiations to obtain different central wavelengths and bandwidths of reflection. Jiang et al. fail to disclose the required reflective structure, substrate/electrode/retardation structure, absorption/filter structure, holographic/cholesteric structure, holographic film, and angle configuration. However, Chen et al. disclose holographic type reflective color liquid crystal display device where the required reflective structure is disclosed. Furthermore, Hoshino discloses a reflection-type color liquid crystal display device where the required substrate/electrode/retardation structure is disclosed. Kaneko discloses reflection-type color liquid crystal display device having absorbing member containing fluorescen material where the required absorption/filter structure is disclosed. Jiang et al. disclose a high-brightness color liquid crystal display panel employing light recycling therein where the required holographic/cholesteric structure is disclosed. Epstein et al. disclose a display apparatus with corrosion resistant light directing film where the required holographic film is disclosed. Finally, Biles et al. disclose a dual wavelength polarization selective holographic optical element where the required angle configuration is disclosed.

It would have been obvious to one of having ordinary skill in the art at the time the invention was made to include required reflective structure, substrate/electrode/retardation structure, absorption/filter structure, holographic/cholesteric structure, holographic film, and angle configuration in Jiang et al. as taught by Chen et al, Hoshino, Kaneko and Jiang et al. respectively, in order to make a liquid crystal display device with better performance.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fazli Erdem whose telephone number is (703) 305-3868. The examiner can normally be reached on M - F 8:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (703) 308-6601. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Starting February 4, 2004, Examiner Fazli Erdem's phone number will be changed to (571) 272-1914 and his SPE Nathan Flynn's phone number will be changed to (571) 272-1915

FE
December 28, 2003